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Valence and Arousal-Based Sentiment Analysis: A Comparative Study

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Abstract : This research paper presents a comprehensive analysis of a sentiment analysis approach that employs valence and arousal as its foundational pillars, in comparison to traditional techniques. Sentiment analysis is an indispensable task in natural language processing that involves the extraction of opinions and emotions from textual data. The valence and arousal dimensions, representing the intensity and positivity/negativity of emotions, respectively, enable the creation of four quadrants, each representing a specific emotional state. The study seeks to determine the impact of utilizing these quadrants to identify distinct emotional states on the accuracy and efficiency of sentiment analysis, in comparison to traditional techniques. The results reveal that the valence and arousal-based approach outperforms other approaches, particularly in identifying nuanced emotions that may be missed by conventional methods. The study's findings are crucial for applications such as social media monitoring and market research, where the accurate classification of emotions and opinions is paramount. Overall, this research highlights the potential of using valence and arousal as a framework for sentiment analysis and offers invaluable insights into the benefits of incorporating specific types of emotions into the analysis. These findings have significant implications for researchers and practitioners in the field of natural language processing, as they provide a basis for the development of more accurate and effective sentiment analysis tools.

Keywords : sentiment analysis, valence and arousal, emotional states, natural language processing, machine learning, text analysis, sentiment classification, opinion mining
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